No. 693,902. Patented Feb. 25, 1902.

G. L. PREBLE.

MACHINE FOR CHAMFERING AND FEATHER EDGING SOLES.

(Application filed Mar. 17, 1898. Renewed Mar. 13, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

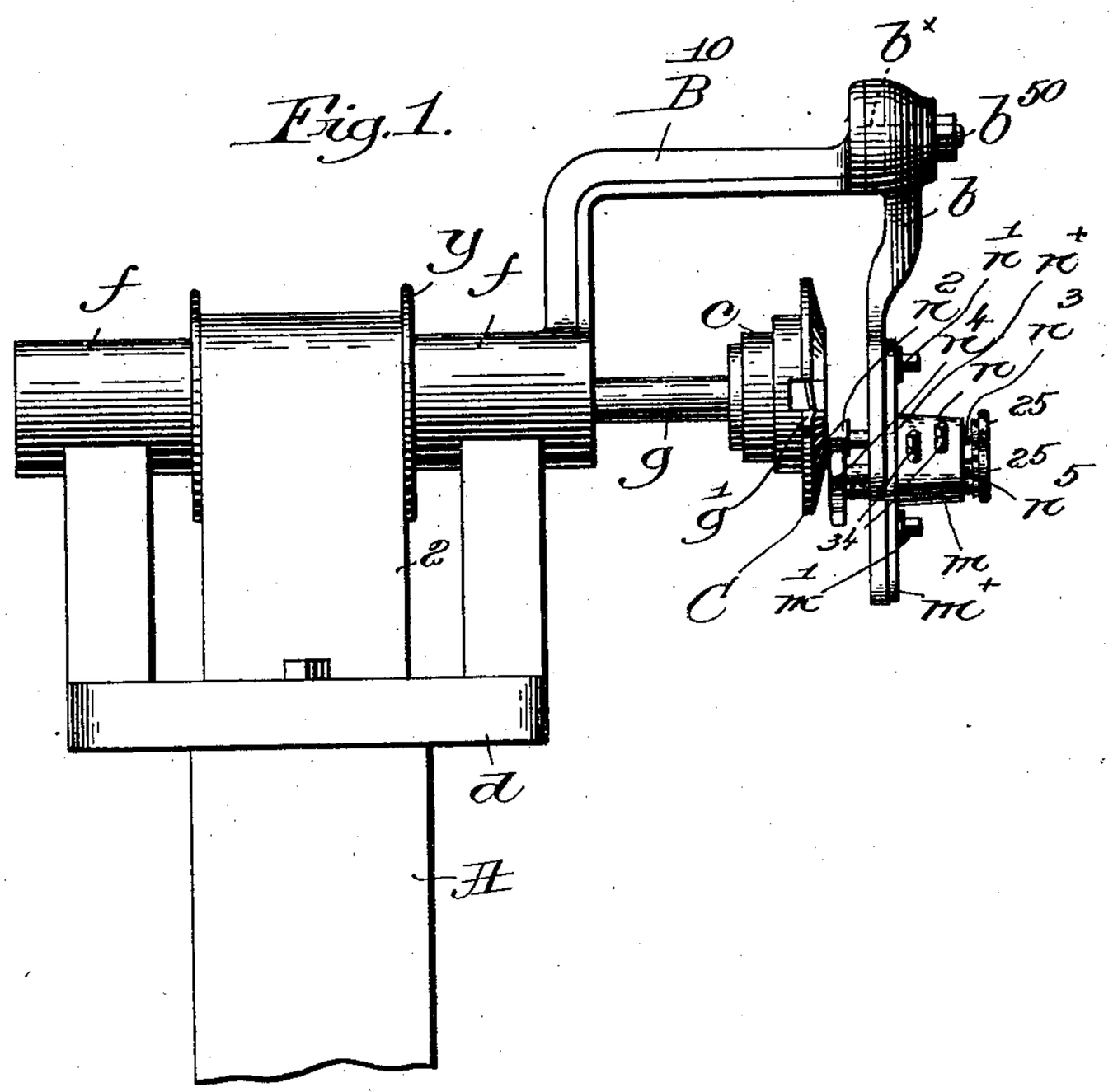

Fig. 2.

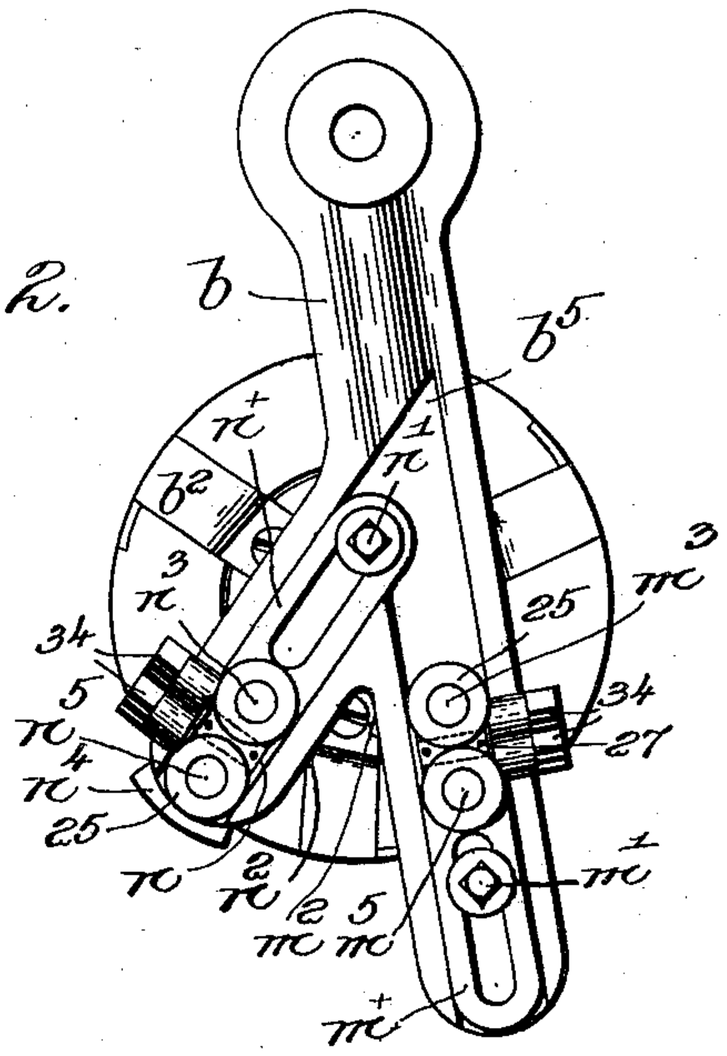

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Fig. 3.

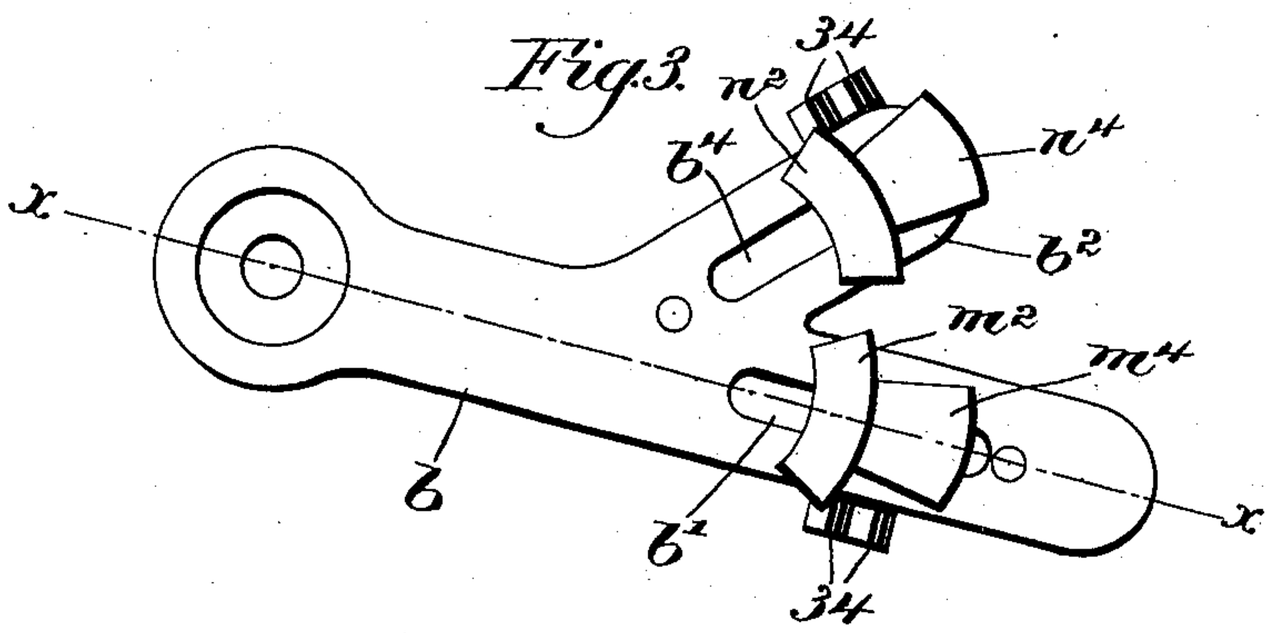


Fig. 4.

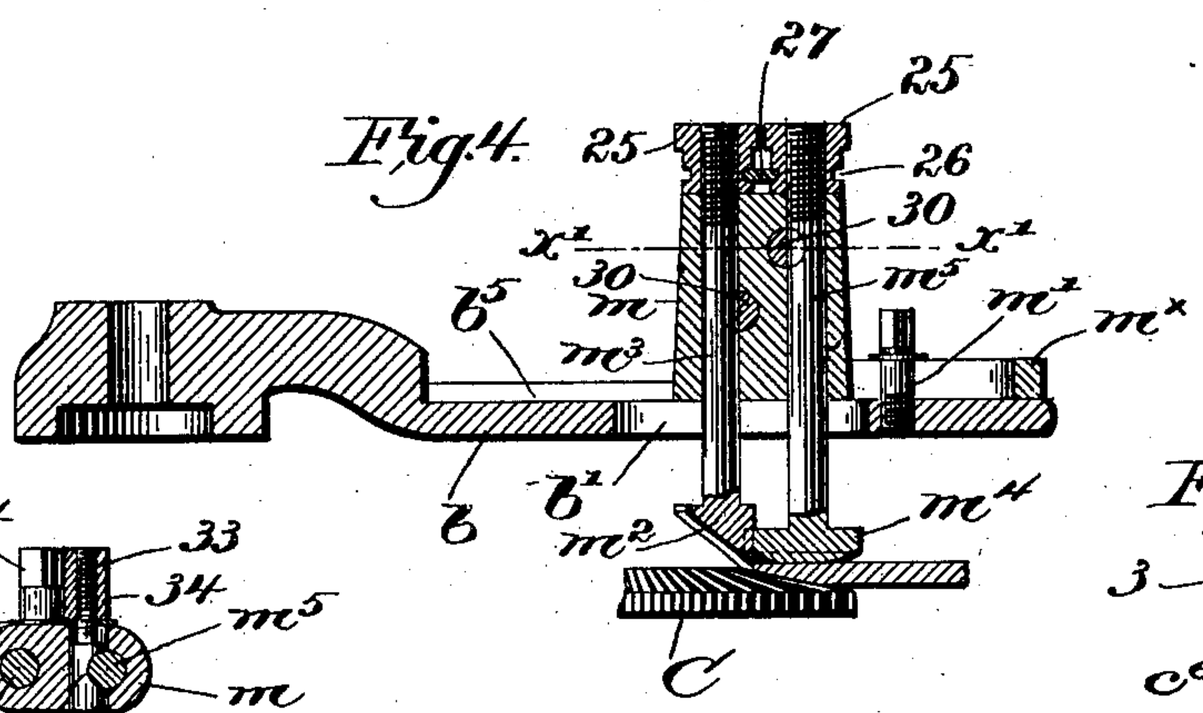


Fig. 5.

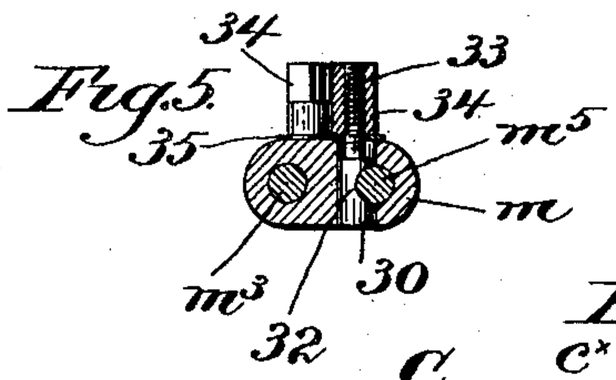


Fig. 6.

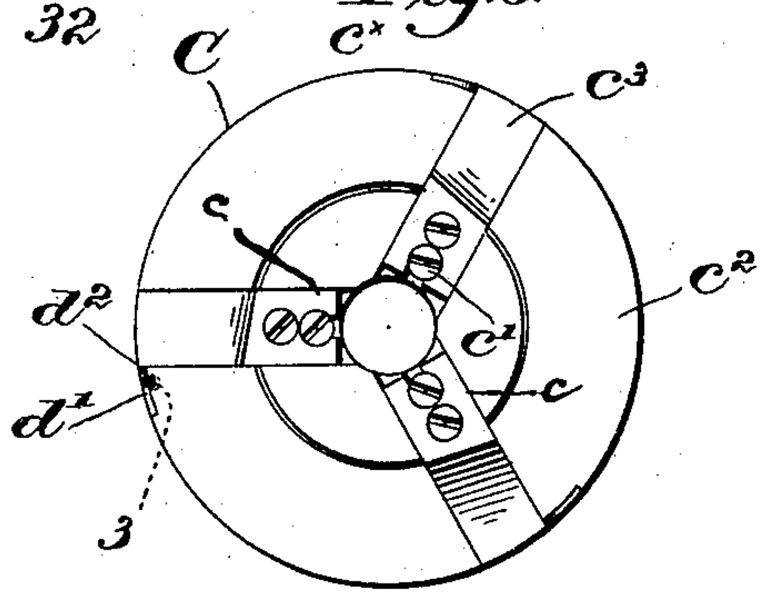


Fig. 7.

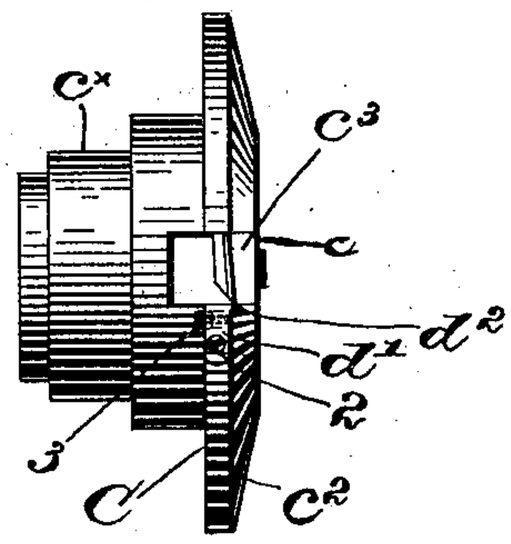


Fig. 7ª.

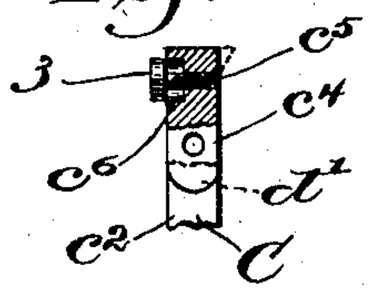
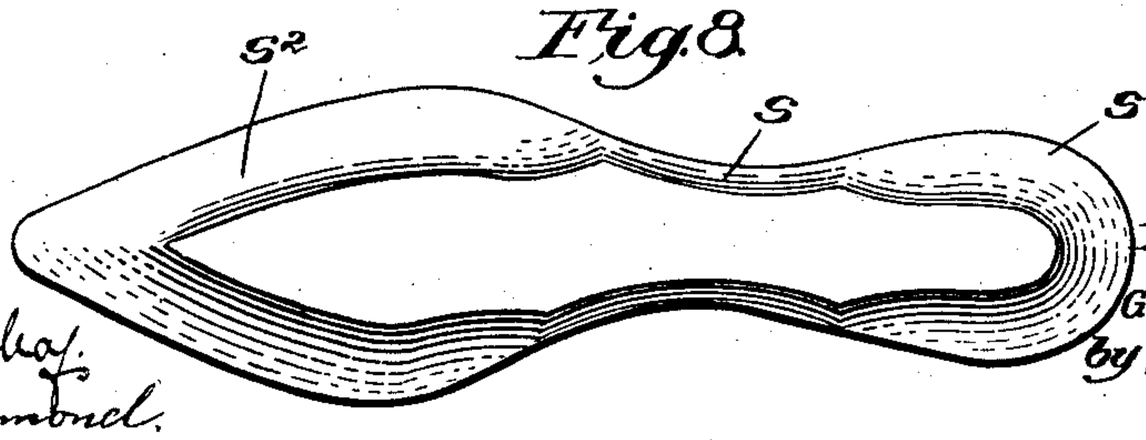


Fig. 8.



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UNITED STATES PATENT OFFICE.

GEORGE L. PREBLE, OF LYNN, MASSACHUSETTS.

MACHINE FOR CHAMFERING AND FEATHER-EDGING SOLES.

SPECIFICATION forming part of Letters Patent No. 693,902, dated February 25, 1902.

Application filed March 17, 1898. Renewed March 13, 1901. Serial No. 51,010. (No model.)

To all whom it may concern:

Be it known that I, GEORGE L. PREBLE, of Lynn, county of Essex, and State of Massachusetts, have invented an Improvement in Machines for Chamfering and Feather-Edging Soles, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention has for its object the production of a machine for chamfering or feather-edging the soles of boots and shoes, whereby the entire sole may be trimmed on one machine and the width or depth of the trimmed surface varied in a ready manner, so that the cut at the shank portion may be the same as the cut at the heel and toe portions or be narrower, as desired.

Various novel features of my invention will be hereinafter described, and particularly pointed out in the claims.

Figure 1 is a front elevation of the upper portion or head of a machine embodying my invention. Fig. 2 is an outer side view of the gage-carrier, enlarged. Fig. 3 is an inner side view thereof, also enlarged. Fig. 4 is a longitudinal section thereof on the line $x\ x$, Fig. 3. Fig. 5 is a transverse sectional detail on the line $x'\ x'$, Fig. 4. Figs. 6 and 7 are front and side elevations, respectively, of the rotary cutter-head. Fig. 7^a is an enlarged detail of the recessed portion of the cutter-head; and Fig. 8 is a plan view of a chamfered sole, showing the varying width of the chamfered portion.

Referring to Fig. 1, the upper end of the standard A is provided with a horizontal head d, on which are mounted two journal-boxes f for a horizontal shaft g, the said shaft having fast thereon between the boxes f a pulley y, connected by a belt z with a suitable source of power, the construction herein described being substantially as shown in United States Patent No. 469,720, dated March 1, 1892, to which reference may be had.

On the end of the shaft g the hub $c^\times$ of a chamfering cutter-head C is secured, said head (see Figs. 6 and 7) being provided on its working face with a series of radially-disposed knives c, having straight cutting edges, and secured by suitable screws c' in slots of the cutter-head. The working face of the head is beveled inwardly from its periphery, as at c^2, at the angle which is to be given the chamfer, the outer ends of the knives being correspondingly beveled, as at c^3. The head is recessed peripherally, as at c^4, Fig. 7^a, adjacent the cutting edge of each knife to receive an edge-guard d', having a slight upturned lip d^2 at the point of the knife, the guard being pivotally held in place by a screw 2 entering the periphery of the head, and the guard is set up or adjusted to compensate for wear by means of a headed screw 3. The shank of the screw enters a threaded hole c^5 near the bottom of the recess c^4, the hole being counterbored at c^6 and intersecting the recess, so that the bottom of the screw-head rests against the bottom of the edge-guard, and by turning the screw the guard can be raised above the face of the cutter-head. The edge-guard prevents the outer end of the knife from entering the material of the sole too deeply during the chamfering, and by means of the adjusting-screw 3 the guard can be adjusted to a nicety.

Referring to Fig. 8, the sole S is shown as chamfered around its entire perimeter, the width of the chamfered portion—that is, its depth inward from the edge of the sole—varying at the shank, heel, and toe portions. At the shank the chamfer s is shown considerably narrower than at the heel and toe portions $s'\ s^2$, and in order to provide for this variation in width I have provided novel means for gaging the sole as the same is subjected to the action of the cutter.

One of the bearings f, Fig. 1, has erected upon it an overhanging arm B^{10}, provided with a stud $b^\times$ in parallelism with and above the shaft g, on which stud is mounted a gage-carrier, shown as an arm b, extended across the face of the cutter-head C and held in fixed position by a suitable check-nut b^{50}. The arm b is longitudinally slotted at b', Figs. 3 and 4, while from a point about midway the length of said arm a branch b^2 extends, also provided with a longitudinal slot b^4. The outer faces of the arm and branch are recessed, as at b^5, Figs. 2 and 4, to receive slide-blocks $m\ n$ on the arm and branch, respectively, said blocks having slotted extensions $m^\times\ n^\times$, through

which set-screws m' n' pass into the arm and branch and by which the blocks are held in adjusted position. Edge-gages m^2 n^2 are provided with shanks m^3 n^3, respectively, which pass through the slots b' b^4 into the slide-blocks m and n, the gages being best shown in Fig. 3 as segmental in shape, with their convex faces turned outward to contact with the edge of the sole. Face-gages m^4 n^4 are also supported in the blocks m and n by shanks m^5 n^5, the face-gages supporting the outer face of the sole during the chamfering. The upper ends of the several shanks are threaded, as shown in Fig. 4, and project beyond the outer ends of the slide-blocks to receive thereon threaded thumb-nuts 25, each provided with an annular groove 26, into which enters the edge of a retaining-plate 27, attached to the block. By rotation of the thumb-nuts the shanks are moved longitudinally to thereby move the edge and face gages toward or from the face of the cutter-head. The inner sides of the face-gages, are concaved to fit closely the convex faces of the edge-gages, as shown in Figs. 3 and 4, and referring to Fig. 4 the relative positions of the gages, cutter-head, and sole are shown. By adjusting the face-gages in the slide-blocks provision is made for soles of different thickness, and the adjustment for the width of the chamfer is provided by moving the slide-blocks in or out on the carrier b b^2 toward or away from the center of the cutter-head. As the slide-blocks are independently adjustable, it will be seen that the edge-gages m^2 n^2 may be set differently, so that a narrow chamfer can be made at the shank and a wide one about the heel and fore part of the sole, or the chamfer may be the same width throughout its extent. Each block is provided with means for securely maintaining the shanks of the gages in adjusted position, the construction being best shown in Fig. 5. Studs 30 are let into the block transversely in holes intersecting the shank-receiving holes, the studs being cut away, as at 32, to embrace the shanks. The ends of the studs are reduced and threaded, as at 33, to enter nuts 34, which bear on washers 35 interposed between them and the block, so that by tightening up the nuts the studs will be drawn toward them to tightly clamp the shanks of the gages and prevent their accidental rotation. Referring to Fig. 2, it will be seen that the gage-carrier can be adjusted angularly on the stud $b^\times$ by means of the nut b^{50} to suit the convenience of the operator.

In the operation of the machine the operator takes a sole to be chamfered and inserts it between the face of the cutter C and the face-gages m^4 n^4, the latter supporting the outer face of the sole, and the sole is then turned and longitudinally moved by the operator, the sole edge being held against the edge-gages m^2 n^2 during such operation. If these gages are set equally, the chamfer will be of uniform width throughout; but if the gages are set differently the chamfer made while the edge of the sole is held against one gage will be wider or narrower than the chamfer made while the sole edge is held against the other gage, it being understood that one edge-gage is used for the shank, while the other is used for the chamfer about the heel and fore part of the sole—that is to say, the operator holds the sole in his hands and usually starts the chamfering at the shank portion, and at such time the edge of the sole at the shank bears against the gage m^2, and the operative draws the sole along until the shank portion is chamfered, and then moves the edge of the sole against the edge of the gage n^2, and said gage is in use while the upper part of the sole is chamfered, and around to the other side, whereupon the edge of the sole is then moved back onto the gage m^2, and the chamfering of the shank portion is completed. Then if the heel-seat is to be chamfered the gage n^2 is brought into service again.

My invention is not restricted to the precise construction and arrangement herein shown, as the same may be varied without departing from the spirit and scope of my invention.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a machine of the class described, a rotary cutter-head, a gage-carrier located in fixed position in front of and adjacent said head, and independently-adjustable edge-gages mounted on the carrier, for and to bear upon the edge of the shank and body portions of the sole respectively, whereby the width of the chamfer on the sole can be varied at the shank and body portions thereof as the edge of the sole is moved over said gages one after another, substantially as described.

2. In a machine of the class described, a rotary cutter-head, a gage-carrier in front of and adjacent the head, two sets of side and face gages mounted on the carrier, and means to adjust the sets of gages independently toward or from the axis of rotation of the cutter-head, substantially as described.

3. In a machine of the class described, a rotary cutter-head, a gage-carrier in front of and adjacent the head, two sets of side and face gages mounted on the carrier, means to adjust the sets of gages in a direction substantially radial to the axis of the cutter-head, and independent means to adjust the gages toward and from the face of the head.

4. In a machine of the class described, a gage-carrier, slide-blocks independently movable on said carrier, means to retain them in adjusted position, separate edge and face gages mounted on each block, and means to adjust said gages independently, substantially as described.

5. In a machine of the class described, a gage-carrier, slide-blocks independently movable on said carrier, means to retain them in

adjusted position, separate edge and face gages provided with shanks extended into the blocks, means to move the shanks in or out to adjust the gages, and clamping devices to retain the shanks and their attached gages in adjusted position, substantially as described.

6. In a machine of the class described, a rotary cutter-head, a gage-carrier, an adjustable edge-gage mounted on the carrier and having a convex face to bear on the edge of the sole, an adjacent independent face-gage, to bear on the face of the sole, and means to adjust said gages, substantially as described.

7. A cutter-head having radially-disposed knives mounted upon its face, an edge-guard on the periphery of the cutter-head adjacent the outer end and cutting edge of each knife, and independent means to adjust each of the edge-guards, substantially as described.

8. A radially-slotted cutter-head, knives mounted in the slots thereof, a recess in the periphery of the head adjacent the outer end of each knife, an edge-guard mounted in each recess and having an outturned lip, and means to adjust the guard to elevate the lip thereof relatively to the face of the cutter-head, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE L. PREBLE.

Witnesses:

JOHN COUPER EDWARDS,

AUGUSTA ELLA DEAN.